

## SEQUENCE LISTING

<110> Kiyosue, Yuko  
Sasaki, Hiroyuki  
Tsukita, Shoichiro  
Eisai Co., Ltd.

<120> CULTURED XENOPUS LAEVIS CELL LINES  
EXPRESSING MUTANT ADENOMATOUS POLYPOSIS COLI GENE

<130> 082368-002400US

<150> PCT/JP03/10434

<151> 2003-08-19

<150> JP 2002-241487

<151> 2002-08-22

<160> 9

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 2829

<212> PRT

<213> Xenopus laevis

<400> 1

Met	Ala	Ala	Ala	Ser	Tyr	Asp	Gln	Leu	Val	Lys	Gln	Val	Glu	Ala	Leu
1				5					10					15	
Thr	Met	Glu	Asn	Thr	Asn	Leu	Arg	Gln	Glu	Leu	Glu	Asp	Asn	Ser	Asn
			20					25					30		
His	Leu	Thr	Lys	Leu	Glu	Thr	Glu	Ala	Thr	Asn	Met	Lys	Glu	Val	Leu
		35					40					45			
Lys	Gln	Leu	Gln	Gly	Ser	Ile	Glu	Asp	Glu	Ala	Met	Ala	Ser	Ser	Gly
	50				55						60				
Pro	Ile	Asp	Leu	Leu	Glu	Arg	Phe	Lys	Asp	Leu	Asn	Leu	Asp	Ser	Ser
65					70					75					80
Asn	Ile	Pro	Ala	Gly	Lys	Ala	Arg	Pro	Lys	Met	Ser	Met	Arg	Ser	Tyr
				85					90					95	
Gly	Ser	Arg	Glu	Gly	Ser	Leu	Ser	Gly	His	Ser	Gly	Glu	Cys	Ser	Pro
			100					105					110		
Val	Pro	Val	Gly	Ser	Phe	Gln	Arg	Gly	Leu	Leu	Asn	Gly	Ser	Arg	
		115					120					125			
Glu	Ser	Ala	Gly	Tyr	Met	Glu	Glu	Leu	Glu	Lys	Glu	Arg	Leu	Leu	Leu
		130				135					140				
Ile	Ala	Glu	His	Glu	Lys	Glu	Glu	Lys	Glu	Lys	Arg	Trp	Tyr	Tyr	Ala
145					150					155					160
Gln	Leu	Gln	Asn	Leu	Thr	Lys	Arg	Ile	Asp	Ser	Leu	Pro	Leu	Thr	Glu
			165						170					175	
Asn	Phe	Ser	Met	Gln	Thr	Asp	Met	Thr	Arg	Arg	Gln	Leu	Glu	Tyr	Glu
			180					185					190		
Ala	Arg	Gln	Ile	Arg	Ala	Ala	Met	Glu	Glu	Gln	Leu	Gly	Thr	Cys	Gln
		195					200					205			
Asp	Met	Glu	Lys	Arg	Val	Gln	Thr	Arg	Val	Gly	Lys	Ile	His	Gln	Ile
	210					215					220				
Glu	Glu	Glu	Ile	Leu	Arg	Ile	Arg	Gln	Leu	Leu	Gln	Ser	Gln	Val	Ala
225					230					235					240
Glu	Ala	Ala	Glu	Arg	Thr	Pro	Gln	Ser	Lys	His	Asp	Ala	Gly	Ser	Arg

Asp	Ala	Glu	Lys	245	Leu	Pro	Asp	Gly	Gln	250	Gly	Thr	Ser	Glu	Ile	255	Thr	Ala
			260						265						270			
Ser	Gly	Asn	Val	Gly	Ser	Gly	Gln	Gly	Ser	Ser	Ser	Ser	Arg	Ala	Asp	His		
		275					280						285					
Asp	Thr	Thr	Ser	Val	Met	Ser	Ser	Asn	Ser	Thr	Tyr	Ser	Val	Pro	Arg			
	290				295						300							
Arg	Leu	Thr	Ser	His	Leu	Gly	Thr	Lys	Val	Glu	Met	Val	Tyr	Ser	Leu			
	305				310					315					320			
Leu	Ser	Met	Leu	Gly	Thr	His	Asp	Lys	Asp	Asp	Met	Ser	Arg	Thr	Leu			
				325					330					335				
Leu	Ala	Met	Ser	Ser	Ser	Gln	Asp	Ser	Cys	Ile	Ala	Met	Arg	Gln	Ser			
			340					345					350					
Gly	Cys	Leu	Pro	Leu	Leu	Ile	Gln	Leu	Leu	His	Gly	Asn	Asp	Lys	Asp			
		355					360					365						
Ser	Val	Leu	Leu	Gly	Asn	Ser	Arg	Gly	Ser	Lys	Glu	Ala	Arg	Ala	Ser			
	370				375						380							
Gly	Ser	Ala	Ala	Leu	Asp	Asn	Ile	Ile	His	Ser	Gln	Pro	Asp	Asp	Lys			
	385				390					395					400			
Arg	Gly	Arg	Arg	Glu	Ile	Arg	Val	Leu	His	Leu	Leu	Glu	Gln	Ile	Arg			
				405				410						415				
Ala	Tyr	Cys	Glu	Thr	Cys	Trp	Glu	Trp	Gln	Glu	Ala	His	Glu	Gln	Gly			
			420				425						430					
Met	Asp	Gln	Asp	Lys	Asn	Pro	Met	Pro	Ala	Pro	Val	Asp	His	Gln	Ile			
	435				440							445						
Cys	Pro	Ala	Val	Cys	Val	Leu	Met	Lys	Leu	Ser	Phe	Asp	Glu	Glu	His			
	450				455					460								
Arg	His	Ala	Met	Asn	Glu	Leu	Gly	Gly	Leu	Gln	Ala	Ile	Ala	Glu	Leu			
	465				470				475					480				
Leu	Gln	Val	Asp	Cys	Glu	Met	Tyr	Gly	Leu	Ile	Asn	Asp	His	Tyr	Ser			
			485					490						495				
Val	Thr	Leu	Arg	Arg	Tyr	Ala	Gly	Met	Ala	Leu	Thr	Asn	Leu	Thr	Phe			
			500				505						510					
Gly	Asp	Val	Ala	Asn	Lys	Ala	Thr	Leu	Cys	Ser	Met	Lys	Ser	Cys	Met			
	515					520						525						
Arg	Ala	Leu	Val	Ala	Gln	Leu	Lys	Ser	Glu	Ser	Glu	Asp	Leu	Gln	Gln			
	530				535						540							
Val	Ile	Ala	Ser	Val	Leu	Arg	Asn	Leu	Ser	Trp	Arg	Ala	Asp	Val	Asn			
	545				550				555					560				
Ser	Lys	Lys	Thr	Leu	Arg	Glu	Val	Gly	Ser	Val	Lys	Ala	Leu	Met	Glu			
				565				570					575					
Cys	Ala	Leu	Asp	Val	Lys	Lys	Glu	Ser	Thr	Leu	Lys	Ser	Val	Leu	Ser			
			580				585						590					
Ala	Leu	Trp	Asn	Leu	Ser	Ala	His	Cys	Thr	Glu	Asn	Lys	Ala	Asp	Ile			
	595					600						605						
Cys	Ser	Val	Asp	Gly	Ala	Leu	Ala	Phe	Leu	Val	Ser	Thr	Leu	Thr	Tyr			
	610				615						620							
Arg	Ser	Gln	Thr	Asn	Thr	Leu	Ala	Ile	Ile	Glu	Ser	Gly	Gly	Gly	Ile			
	625				630					635					640			
Leu	Arg	Asn	Val	Ser	Ser	Leu	Ile	Ala	Thr	Asn	Glu	Asp	His	Arg	Gln			
				645					650					655				
Ile	Leu	Arg	Glu	Asn	Asn	Cys	Leu	Gln	Thr	Leu	Leu	Gln	His	Leu	Lys			
			660				665						670					
Ser	His	Ser	Leu	Thr	Ile	Val	Ser	Asn	Ala	Cys	Gly	Thr	Leu	Trp	Asn			
	675					680						685						
Leu	Ser	Ala	Arg	Asn	Ala	Lys	Asp	Gln	Glu	Gly	Leu	Trp	Asp	Met	Gly			
	690				695						700							
Ala	Val	Ser	Met	Leu	Lys	Asn	Leu	Ile	His	Ser	Lys	His	Lys	Met	Ile			
	705				710					715				720				
Ala	Met	Gly	Ser	Ala	Ala	Ala	Leu	Arg	Asn	Leu	Met	Ala	Asn	Arg	Pro			
				725					730					735				

Ala	Lys	Tyr	Lys	Asp	Ala	Asn	Ile	Met	Ser	Pro	Gly	Ser	Ser	Val	Pro	
			740					745						750		
Ser	Leu	His	Val	Arg	Lys	Gln	Lys	Ala	Leu	Glu	Ala	Glu	Leu	Asp	Ala	
			755					760						765		
Gln	His	Leu	Ser	Glu	Thr	Phe	Asp	Asn	Ile	Asp	Asn	Leu	Ser	Pro	Lys	
			770					775						780		
Thr	Thr	His	Arg	Asn	Lys	Gln	Arg	His	Lys	Gln	Asn	Leu	Cys	Ser	Glu	
															800	
Tyr	Ala	Leu	Asp	Ser	Ser	Arg	His	Asp	Asp	Ser	Ile	Cys	Arg	Ser	Asp	
															815	
Asn	Phe	Ser	Ile	Gly	Asn	Leu	Thr	Val	Leu	Ser	Pro	Tyr	Ile	Asn	Thr	
															830	
Thr	Val	Leu	Pro	Gly	Ser	Ser	Ser	Pro	Arg	Pro	Thr	Met	Asp	Gly	Ser	
Arg	Pro	Glu	Lys	Asp	Arg	Glu	Arg	Thr	Ala	Gly	Leu	Gly	Asn	Tyr	His	
Ser	Thr	Thr	Glu	Ser	Ser	Gly	Asn	Ser	Ser	Lys	Arg	Ile	Gly	Ile	Gln	
															880	
Leu	Ser	Thr	Thr	Ala	Gln	Ile	Ser	Lys	Val	Met	Asp	Glu	Val	Ser	Asn	
															895	
Ile	His	Leu	Val	Gln	Glu	Asn	Arg	Ser	Ser	Gly	Ser	Ala	Ser	Glu	Met	
															910	
His	Cys	Met	Ser	Asp	Glu	Arg	Asn	Ser	Gln	Arg	Lys	Pro	Ser	Ser	Asn	
His	Pro	Gln	Ser	Asn	Pro	Phe	Thr	Phe	Thr	Lys	Ala	Glu	Ser	Ser	Thr	
Arg	Gly	Cys	Pro	Val	Ala	Phe	Met	Lys	Met	Glu	Tyr	Lys	Met	Ala	Ser	
															960	
Asn	Asp	Ser	Leu	Asn	Ser	Val	Ser	Ser	Thr	Glu	Gly	Tyr	Gly	Lys	Arg	
															975	
Gly	Gln	Val	Lys	Pro	Ser	Val	Glu	Ser	Tyr	Ser	Glu	Asp	Asp	Glu	Ser	
Lys	Phe	Phe	Ser	Tyr	Gly	Gln	Tyr	Pro	Ala	Gly	Leu	Ala	His	Lys	Ile	
Gln	Ser	Ala	Asn	His	Met	Asp	Asp	Asn	Asp	Thr	Glu	Leu	Asp	Thr	Pro	
Ile	Asn	Tyr	Ser	Leu	Lys	Tyr	Ser	Asp	Glu	Gln	Leu	Asn	Ser	Gly	Arg	
															1040	
Gln	Ser	Pro	Thr	Gln	Asn	Glu	Arg	Trp	Ser	Arg	Pro	Lys	His	Ile	Ile	
															1055	
Asp	Ser	Glu	Met	Lys	Gln	Ser	Glu	Gln	Arg	Gln	Pro	Arg	Thr	Thr	Lys	
Thr	Thr	Tyr	Ser	Ser	Tyr	Thr	Glu	Asn	Lys	Glu	Glu	Lys	His	Lys	Lys	
Phe	Pro	Pro	His	Phe	Asn	Gln	Ser	Glu	Asn	Val	Pro	Ala	Tyr	Thr	Arg	
Ser	Arg	Gly	Ala	Asn	Asn	Gln	Val	Asp	Gln	Ser	Arg	Val	Ser	Ser	Asn	
															1120	
Leu	Ser	Asn	Asn	Ser	Lys	Ala	Ser	Lys	Pro	His	Cys	Gln	Val	Asp	Asp	
															1135	
Tyr	Asp	Asp	Asp	Lys	Thr	Thr	Asn	Phe	Ser	Glu	Arg	Tyr	Ser	Glu	Glu	
Glu	Gln	Gln	Glu	Asp	Glu	Thr	Glu	Arg	Gln	Asn	Lys	Tyr	Asn	Ile	Lys	
Ala	Tyr	Ala	Ser	Glu	Glu	His	His	Gly	Glu	Gln	Pro	Ile	Asp	Tyr	Ser	
Arg	Lys	Tyr	Ser	Thr	Asp	Val	Pro	Ser	Ser	Ala	Gln	Lys	Pro	Ser	Phe	
															1200	
Pro	Tyr	Ser	Asn	Asn	Ser	Ser	Lys	Gln	Lys	Pro	Lys	Lys	Glu	Gln	Val	
															1215	
Ser	Ser	Asn	Ser	Asn	Thr	Pro	Thr	Pro	Ser	Pro	Asn	Ser	Asn	Arg	Gln	

Asn Gln Leu His Pro Asn Ser Ala Gln Ser Arg Pro Gly Leu Asn Arg	1220	1225	1230
1235	1240	1245	
Pro Lys Gln Ile Pro Asn Lys Pro Pro Ser Ile Asn Gln Glu Thr Ile	1250	1255	1260
Gln Thr Tyr Cys Val Glu Asp Thr Pro Ile Cys Phe Ser Arg Gly Ser	1265	1270	1275
Ser Leu Ser Ser Leu Ser Ser Ala Glu Asp Glu Ile Glu Gly Arg Glu	1285	1290	1295
Arg Asn Ser Arg Gly Gln Glu Ser Asn Asn Thr Leu Gln Ile Thr Glu	1300	1305	1310
Pro Lys Glu Ile Ser Ala Val Ser Lys Asp Gly Ala Val Asn Glu Thr	1315	1320	1325
Arg Ser Ser Val His His Thr Arg Thr Lys Asn Asn Arg Leu Gln Thr	1330	1335	1340
Ser Asn Ile Ser Pro Ser Asp Ser Ser Arg His Lys Ser Val Glu Phe	1345	1350	1355
Ser Ser Gly Ala Lys Ser Pro Ser Lys Ser Gly Ala Gln Thr Pro Lys	1365	1370	1375
Ser Pro Pro Glu His Tyr Val Gln Glu Thr Pro Leu Met Phe Ser Arg	1380	1385	1390
Cys Thr Ser Gly Ser Ser Leu Asp Ser Phe Glu Ser His Ser Ile Ala	1395	1400	1405
Ser Ser Ile Ala Ser Ser Val Ala Ser Glu His Met Ile Ser Gly Ile	1410	1415	1420
Ile Ser Pro Ser Asp Leu Pro Asp Ser Pro Gly Gln Thr Met Pro Pro	1425	1430	1435
Ser Arg Ser Lys Thr Pro Pro Pro Pro Gln Thr Val Gln Ala Lys Lys	1445	1450	1455
Asp Gly Ser Lys Pro Ile Val Pro Asp Glu Glu Arg Gly Lys Val Ala	1460	1465	1470
Lys Thr Ala Val His Ser Ala Ile Gln Arg Val Gln Val Leu Gln Glu	1475	1480	1485
Ala Asp Thr Leu Leu His Phe Ala Thr Glu Ser Thr Pro Asp Gly Phe	1490	1495	1500
Ser Cys Ala Ser Ser Leu Ser Ala Leu Ser Leu Asp Glu Pro Tyr Ile	1505	1510	1515
Gln Lys Asp Val Gln Leu Lys Ile Met Pro Pro Val Leu Glu Asn Asp	1525	1530	1535
Gln Gly Asn Lys Ala Glu Pro Glu Lys Glu Phe Ile Asp Asn Lys Ala	1540	1545	1550
Lys Lys Glu Asp Lys Arg Ser Glu Gln Glu Lys Asp Met Leu Asp Asp	1555	1560	1565
Thr Asp Asp Asp Ile Asp Ile Leu Glu Glu Cys Ile Ile Ser Ala Met	1570	1575	1580
Pro Arg Lys Pro Ser Arg Lys Asn Lys Lys Val Pro Gln Pro Thr Pro	1585	1590	1595
Gly Lys Pro Pro Pro Pro Val Ala Arg Lys Pro Ser Gln Leu Pro Val	1605	1610	1615
Tyr Lys Leu Leu Ser Ser Gln Asn Arg Leu Gln Thr Gln Lys His Val	1620	1625	1630
Asn Phe Thr His Ser Asp Asp Met Pro Arg Val Tyr Cys Val Glu Gly	1635	1640	1645
Thr Pro Ile Asn Phe Ser Thr Ala Thr Ser Leu Ser Asp Leu Thr Ile	1650	1655	1660
Glu Ser Pro Pro Ser Glu Pro Thr Asn Asp Gln Pro Asn Thr Asp Ser	1665	1670	1675
Leu Ser Thr Asp Leu Glu Lys Arg Asp Thr Ile Pro Thr Glu Gly Arg	1685	1690	1695
Ser Thr Asp Asp Thr Asp Ala Ser Lys Pro Leu Asn Pro Thr Thr Val			

1700	1705	1710
Leu Asp Glu Asp Lys Ala Glu Glu Gly Asp Ile Leu Ala Glu Cys Ile		
1715	1720	1725
His Ser Ala Met Pro Lys Gly Lys Ser His Lys Pro Tyr Arg Val Lys		
1730	1735	1740
Lys Ile Met Asp Gln Ile Asn His Thr Ser Ala Ala Thr Ser Ser Gly		
1745	1750	1755
Asn Ser Arg Ser Met Gln Glu Thr Asp Lys Asn Lys Pro Thr Ser Pro		
1765	1770	1775
Val Lys Pro Met Pro Gln Ser Ile Gly Phe Lys Glu Arg Leu Lys Lys		
1780	1785	1790
Asn Thr Glu Leu Lys Leu Asn Pro Asn Ser Glu Asn Gln Tyr Cys Asp		
1795	1800	1805
Pro Arg Lys Pro Ser Ser Lys Lys Pro Ser Lys Val Ala Asn Glu Lys		
1810	1815	1820
Ile Pro Asn Asn Glu Glu Arg Thr Lys Gly Phe Ala Phe Asp Ser Pro		
1825	1830	1835
His His Tyr Thr Pro Ile Glu Gly Thr Pro Tyr Cys Phe Ser Arg Asn		
1845	1850	1855
Asp Ser Leu Ser Ser Leu Asp Phe Glu Asp Asp Asp Ile Asp Leu Ser		
1860	1865	1870
Lys Glu Lys Ala Glu Leu Arg Lys Glu Lys Gly Thr Lys Asp Thr Asp		
1875	1880	1885
Gln Lys Val Lys Tyr Lys His Glu Asn Arg Ala Ile Asn Pro Met Gly		
1890	1895	1900
Lys Gln Asp Gln Thr Gly Pro Lys Ser Leu Gly Gly Arg Asp Gln Pro		
1905	1910	1915
Lys Ala Leu Val Gln Lys Pro Thr Ser Phe Ser Ser Ala Ala Lys Gly		
1925	1930	1935
Thr Gln Asp Arg Gly Gly Ala Thr Asp Glu Lys Met Glu Asn Phe Ala		
1940	1945	1950
Ile Glu Asn Thr Pro Val Cys Phe Ser Arg Asn Ser Ser Leu Ser Ser		
1955	1960	1965
Leu Ser Asp Ile Asp Gln Glu Asn Asn Asn Lys Glu Thr Glu Pro Leu		
1970	1975	1980
Lys Gln Thr Gly Thr Ser Glu Thr Gln Leu Gly Leu Arg Arg Pro Gln		
1985	1990	1995
Thr Ser Gly Tyr Ala Pro Lys Ser Phe His Val Glu Asp Thr Pro Val		
2005	2010	2015
Cys Phe Ser Arg Asn Ser Ser Leu Ser Ser Leu Ser Ile Asp Ser Glu		
2020	2025	2030
Asp Asp Leu Leu Gln Glu Cys Ile Ser Ser Ala Met Pro Lys Lys Arg		
2035	2040	2045
Lys Pro Ser Lys Ile Lys Asn Glu Val Gly Lys Ser Arg Ser Asn Ser		
2050	2055	2060
Val Gly Gly Ile Leu Ala Glu Glu Pro Asp Leu Thr Leu Asp Leu Arg		
2065	2070	2075
Asp Ile Gln Ser Pro Asp Ser Glu Asn Ala Phe Ser Pro Asp Ser Glu		
2085	2090	2095
Asn Phe Asp Trp Lys Ala Ile Gln Glu Gly Ala Asn Ser Ile Val Ser		
2100	2105	2110
Arg Leu His Gln Ala Ala Ala Ala Gly Ser Leu Ser Arg Gln Gly Ser		
2115	2120	2125
Ser Asp Ser Asp Ser Ile Leu Ser Leu Lys Ser Gly Ile Ser Leu Gly		
2130	2135	2140
Ser Pro Phe His Leu Thr Leu Asp Lys Glu Glu Lys Thr Ile Thr Ser		
2145	2150	2155
Asn Lys Gly Pro Lys Ile Leu Lys Pro Ala Glu Lys Ser Ala Leu Glu		
2165	2170	2175
Asn Lys Lys Thr Glu Glu Glu Pro Lys Gly Ile Lys Gly Gly Lys Lys		

Val Tyr Lys	2180	Gly Lys Ser	2185	Ser Arg Ser	2190	Ser Ser Asp Phe
2195		2200		2205		
Ser Ser His		Ser Val Gln		Asn Met Pro		Ser Ile Ser
2210		2215		2220		
Arg Gly Arg		Ile His Ile		Pro Gly Val		Arg Ala Ser
2225		2230		2235		2240
Ser Thr Ser		Pro Val Ser		Lys Lys Gly		Pro Val Pro
2245		2250		2255		
Ser Lys Gly		Ser Asn Glu		Asn Pro Ser		Ser Ser Pro
2260		2265		2270		Lys Gly
Thr Lys Pro		Leu Lys Ser		Glu Leu Val		Tyr Gly Ser
2275		2280		2285		Arg Pro Ser
Thr Pro Gly		Gly Ser Ser		Lys Gly Asn		Ser Arg Ser
2290		2295		2300		Arg Asp
Ser Ala Ser		Ser Arg Pro		Ser Pro Gln		Pro Leu Ser
2305		2310		2315		2320
Ser Pro Gly		Arg Asn Ser		Ile Ser Pro		Gly Lys Asn
2325		2330		2335		Gly Ile Ser
Pro Asn Lys		Phe Ser Gln		Leu Pro Arg		Thr Thr Ser
2340		2345		2350		Pro Ser Thr
Ser Thr Lys		Ser Ser Gly		Ser Gly Arg		Met Ser Tyr
2355		2360		2365		Thr Ser Pro
Arg Gln Leu		Ser Gln Pro		Asn Leu Ser		Lys Gln Ser
2370		2375		2380		Gly Leu Pro
Thr His Ser		Ser Ile Pro		Arg Ser Glu		Ser Ala Ser
2385		2390		2395		Lys Ser Leu
Gln Asn Val		Asn Thr Gly		Ser Asn Lys		Lys Val Glu
2405		2410		2415		Leu Ser Arg
Ser Ser Thr		Lys Ser Ser		Gly Ser Glu		Ser Asp Arg
2420		2425		2430		Glu Arg Pro
Ala Leu Val		Arg Gln Ser		Thr Phe Ile		Lys Glu Ala
2435		2440		2445		Pro Ser Pro
Leu Arg Arg		Lys Leu Glu		Glu Ser Ala		Ser Phe Glu
2450		2455		2460		Ser Leu Ser
Ser Ser Arg		Ala Asp Ser		Pro Pro Arg		Ser Gln Thr
2465		2470		2475		Gln Thr Gln
Leu Ser Pro		Ser Leu Pro		Asp Met Ala		Leu Ser Thr
2485		2490		2495		His Ser Ile
Ala Gly Gly		Trp Arg Lys		Met Pro Pro		Asn Leu Asn
2500		2505		2510		Pro Ala Ala
His Gly Asp		Ser Arg Arg		Arg His Asp		Ile Ser Arg
2515		2520		2525		Ser His Ser
Ser Pro Ser		Arg Leu Pro		Ile Thr Arg		Ser Gly Thr
2530		2535		2540		Trp Lys Arg
His Ser Lys		His Ser Ser		Ser Leu Pro		Arg Val Ser
2545		2550		2555		Thr Trp Arg
Thr Gly Ser		Ser Ser Ser		Ile Leu Ser		Ala Ser Ser
2565		2570		2575		Glu Ser Ser
Lys Ala Lys		Ser Glu Asp		Glu Lys Gln		Gln Val Cys
2580		2585		2590		Ser Phe Pro
Pro Arg Ser		Glu Cys Ser		Ser Ser Ala		Lys Gly Thr
2595		2600		2605		Trp Arg Lys
Lys Glu Ser		Glu Ile Leu		Glu Thr Pro		Ser Asn Gly
2610		2615		2620		Ser Ser Ser
Ile Ala Glu		Ser Asn Cys		Ser Leu Glu		Ser Lys Thr
2625		2630		2635		Leu Val Tyr
Met Ala Pro		Ala Val Ser		Lys Thr Glu		Asp Val Trp
2645		2650		2655		Val Arg Ile
Asp Cys Pro		Ile Asn Asn		Pro Arg Ser		Gly Arg Ser
2660		2665		2670		Thr Gly Asn

Ser Pro Pro Val Ile Asp Asn Val Leu Asp Gln Gly Gln Lys Glu Glu  
 2675 2680 2685  
 Ala Ala Lys Asp Cys His Thr Arg His Asn Ser Gly Asn Gly Asn Val  
 2690 2695 2700  
 Pro Leu Leu Glu Asn Arg Gln Lys Ser Phe Ile Lys Val Asp Gly Leu  
 2705 2710 2715 2720  
 Asp Thr Lys Gly Thr Asp Pro Lys Ser Leu Ile Asn Asn Gln Gln Glu  
 2725 2730 2735  
 Thr Asn Glu Asn Thr Val Ala Glu Arg Thr Ala Phe Ser Ser Ser Ser  
 2740 2745 2750  
 Ser Ser Lys His Ser Ser Pro Ser Gly Thr Val Ala Ala Arg Val Thr  
 2755 2760 2765  
 Pro Phe Asn Tyr Asn Pro Ser Pro Arg Lys Ser Asn Gly Glu Asn Ser  
 2770 2775 2780  
 Thr Ser Arg Pro Ser Gln Ile Pro Thr Pro Val Thr Asn Ser Thr Lys  
 2785 2790 2795 2800  
 Lys Arg Asp Ser Lys Thr Glu Thr Thr Asp Ser Ser Gly Ser Gln Ser  
 2805 2810 2815  
 Pro Lys Arg His Ser Gly Ser Tyr Leu Val Thr Ser Val  
 2820 2825

<210> 2  
 <211> 30  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Aritifically synthesized primer sequence

<400> 2  
 cgacgcgtaa tgcattttct ccagactctg 30

<210> 3  
 <211> 39  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Aritifically synthesized primer sequence

<400> 3  
 ggaattcgga tcctcacacc agataagaac cagagtgcc 39

<210> 4  
 <211> 33  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Aritifically synthesized primer sequence

<400> 4  
 cgacgcgtat ggctgctgct tcgtatgatc agt 33

<210> 5  
 <211> 29  
 <212> DNA  
 <213> Artificial Sequence

<220>

<223> Aritifically synthesized primer sequence

<400> 5

cgacgcgtac ctgctgttct ttcctgtc

29

<210> 6

<211> 28

<212> DNA

<213> Artificial Sequence

<220>

<223> Aritifically synthesized primer sequence

<400> 6

ctagctagca tggctgctgc ttcgtatg

28

<210> 7

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> Aritifically synthesized primer sequence

<400> 7

cctgtcccaa gtaggtcacg atcgatc

27

<210> 8

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> Aritifically synthesized primer sequence

<400> 8

ctagctagcc tcggcaacta ccattcg

27

<210> 9

<211> 19

<212> DNA

<213> Artificial Sequence

<220>

<223> Aritifically synthesized primer sequence

<400> 9

attagagctc actctagac

19